3

Milling & Baking News

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OSHA to draft ergonomic plan for plants in all industries

WASHINGTON, Sept. 4. — In a move that had been anticipated in wholesale baking for more than a year, Secretary of Labor Elizabeth Dole last week said the Department of Labor would launch a major initiative to reduce repetitive motion trauma in American industry.

Secretary Dole said the Occupational Safety and Health Administration was immediately publishing ergonomic guidelines for plants in the red meat industry and would begin formal rule-making procedures to cover all U.S. industries.

Describing repetitive motion trauma as "one of the nation's most debilitating across-the-board worker safety and health illnesses of the 1990s," Mrs. Dole added, "These painful and sometimes crippling illnesses now make up 48% of all recordable industrial workplace illnesses. We must do our utmost to protect American workers from these hazards."

Year-ago start by A.B.A.

The board of directors of American Bakers Association, in a meeting last September in Las Vegas, established a generic ergonomic program for wholesale baking as recommended by the A.B.A. Ergonomic Task Force. Dan Macleod, president of Ergo-Tech, Inc., an ergonomic consulting concern based in Minneapolis, was retained at that Las Vegas meeting as A.B.A.'s ergonomic consultant.

Mr. Macleod said Friday that the OSHA

Continued on Page 16

ON THE INSIDE

Strength at General Mills 27
Annual report says business structure of General Mills "never stronger," outlook for each of key businesses is promising.

Serving size questioned 20
Wholesale bakers oppose plan by Food and Drug Administration to change standard serving size in bread labeling to 2 ozs.

Average wheat price dips 18
U.S.D.A. places national average price for wheat in August at $2.59 per bu, off 20c from previous month and lowest since 1987.

Ingredient week 10

In this week's issue:

BAKING CENSUS REPORT

LATE NEWS HIGHLIGHTS

W.S.U. establishes endowed chair in wheat breeding

OLYMPIA, WASH., Sept. 4. — The Orville A. Vogel Endowed Chair in Wheat Breeding and Genetics has been established at Washington State University in honor of the retired U.S. Department of Agriculture wheat breeder who was stationed at W.S.U. for 42 years. Mr. Vogel developed the first commercially successful semi-dwarf wheat varieties in the northern hemisphere and shared this germplasm with Norman Borlaug, whose breeding work led to increased wheat yields around the world. The establishment of the endowed chair culminated more than two years of activity by W.S.U. and wheat industry leaders. The industry raised $500,000 and another $500,000 was allocated by the state legislature from the Washington State Distinguished Professor Matching Grant Program. W.S.U. hopes to raise an additional $500,000 to bring the endowment to $1.5 million by 1992, at which time the department expects to fill the position. Creation of the endowed chair will stimulate research in wheat breeding.

British Sugar to be sold through 'auction'

LONDON, Sept. 4. — Berisford International accepted the recommendation of Schroders, its merchant bank advisers, that an "auction" be conducted to obtain the highest price possible in the sale of its British Sugar subsidiary. British Sugar, the U.K. beet sugar refining monopoly operating as Bristar, will be offered through a document that is scheduled for release before mid-month. Berisford's aim is to realize sufficient proceeds to allow the easing of its heavy debt burden incurred mainly on account of unsuccessful real estate investments in the United States. Schroders said that it received "a lot of inquiries" regarding the possible sale of Berisford's food businesses. It said the information memorandum "will enable a wide range of potential purchasers to indicate their possible levels of interest within a properly structured sale process." Frequently mentioned as the most likely buyer was Associated British Foods, the company controlled by

Continued on Page 10

Sara Lee introduces 'healthy' retail, food service product line

DEERFIELD, ILL., Sept. 4. — Banking on projections that the overall "healthy" foods segment will reach $36 billion in sales by 1994, Sara Lee Bakery has developed a new line of frozen baked foods that is 98% fat free, cholesterol free, low in sodium and contains one-third fewer calories.

The line is viewed as a significant product introduction for Sara Lee Bakery, which was criticized earlier this year by John H. Bryan, the chairman of the parent Sara Lee Corp., as "not adequately responding to the 'good for you' trend" in food products (see *Milling & Baking News* of Feb. 27, Page 14.) Two months later, Thomas D. MacLeod Jr. resigned as president and chief executive officer of Sara Lee Bakery.

In the fresh sweet goods arena, Entenmann's, Inc., part of Kraft General Foods, launched a 12-item line of fat-free, choles-

Continued on Page 13

While confident they would be able to find adequate quantities of milling quality soft red, wheat buyers faced as stiff a challenge this year as any in memory. Flour millers often were limited in their ability to discount off-grade wheat by unusually strong feed demand for No. 3 soft red.

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BAKING CENSUS REPORT

(BREAD AND CAKE AND FROZEN)

Milling & Baking News

Eagle
BAKING INGREDIENTS

Census shows healthy gains in bread, cake

The 1987 Census of Manufactures for the Bread, Cake and Related Products Industry underscored marked improvement in almost all measures of the overall health of the baking business. The Census, conducted every five years, affirmed a robust increase in the volume of products shipped and a continuing emphasis on higher-margin products, and disclosed the first increase in number of companies and plants in the wholesale bread and cake business in at least 40 years.

BAKING CENSUS REPORT

Highlights of the 1987 Census, as detailed in this special section, include the following:

- Shipments of white pan bread increased for the first time in almost 25 years.
- Shipments of all products on a combined basis increased 18%, contrasted with a decrease of 1.4% noted in the previous Census.
- The volume gap between variety bread and white bread narrowed, but the sharpest rate of increase was in shipments of bread-type rolls.
- Snack cakes led major individual product performance with an impressive shipment increase of 54%, largely attributed to growing popularity of muffins.
- While supermarket bakeries gained market share on the strength of supplying in-store operations, wholesale bakeries continued as the dominant force in the bread and cake industry, accounting for 84% of total value of shipments and 85% of total value added by manufacture.
- The number of plants and companies in the bread and cake industry increased 23% from $13,143.3 million in 1982 and compared with $9,274.9 million in 1977. Value added by manufacture, judged by the Bureau of the Census as "the best value measure available for comparing the relative economic importance of manufacturing," continued to increase at a greater rate than value of shipments. Value added in the Bread, Cake and Related Products Industry in 1987 totaled $10,532.9 million, up 34% from $7,861.1 million in 1982.

While the percentage increases in value of shipments and value added by manufacture in 1987 (23% and 34%, respectively) were smaller than noted in the 1982 Census (42% and 46%, respectively), the latter Census reflected higher inflation rates. During the 1977-82 period, the Producer Price Index for Bakery Products increased 47%. By way of contrast, the same index in the 1982-87 period increased only 18%.

While further changes in product classifications in the 1987 Census complicate

nated in Standard Industrial Classification 2051 as well as those classified in other industries — totaled an estimated 20,584,000,000 lbs in 1987. That was up 3,179,000,000 lbs, or 18%, from 17,405,000,000 lbs in the 1982 Census.

All bread shipments in 1987 were up 18% in pounds, a marked contrast from the decline of 1.4% in 1982 from 1977.

White bread remained the leading product of the Bread, Cake and Related Products Industry in both poundage and dollar value, but the category's share of the total market continued to be challenged by increasing shipments of variety bread.

According to the Census report, shipments of white bread in 1987 gained 6%, the first upturn in almost 25 years. Variety bread continued its strong performance, with 1987 shipments up 31% from 1982.

On the basis of value of shipments, white bread accounted for 22% of total bread and cake shipments in 1987, bread, up 50%, and other variety bread, including raisin, potato, salt-rising, salt-free and canned, up 61%.

The Census showed that shipments of bread-type rolls in 1987 increased at a sharper rate than bread. Shipments of bread-type rolls were up 26% from 1982.

All six product lines in the bread-type roll category posted poundage gains in 1987 from 1982, led by hearth rolls, up 17%, and hamburger and wiener rolls, up 15%. The latter continued to be the largest volume bread-type roll product and the second-largest volume product in the Bread, Cake and Related Products Industry.

The Census report again showed a mixed performance for sweet goods, with 1987 shipments increasing for soft cakes and sweet yeast goods, including yeast-raised donuts, sweet rolls and coffee cakes, and decreasing in pies and cake-type donuts.

The 1987 Census showed a significant variation in the share-of-market battle between the two major segments of the Bread, Cake and Related Products Industry — Wholesale Bakeries and Grocery Chain Bakeries.

Lower wholesale share

Wholesale Bakeries accounted for 84% of the industry's value of shipments in 1987 and 85% of value added by manufacture, the lowest share of the market in almost 25 years, or since the 1963 Census. These percentages compared with 90% and 91%, respectively, in the 1982 Census.

Grocery Chain Bakeries increased their share of value of shipments and

Baking Census at a glance . . .

Plant, company numbers increase, reversing trends ..... Page 5-A
White bread shipments up; variety bread narrows gap ..... Page 7-A
Capital spending increases 36%; more on equipment ..... Page 16-A
Wheat flour usage climbs to apparent record ..... Page 17-A
Soft cakes, cake donuts buck frozen product decline ..... Page 19-A

Advertising sponsor: Eagle Baking Ingredients ..... Pages 9A-12A, 20-A

the first time since the current definition of wholesale baking was adopted in 1947.

Shipment value increases 23%

Total value of all product shipments for the 2,357 plants classified in the Bread, Cake and Related Products Industry in 1987 was $16,202.1 million, up comparisons of poundage shipments with 1982 and earlier Census reports, total shipments of bread, cake and roll products, on the basis of 1987 product listings, recorded a healthy increase.

Bread, cake shipments up 18%

Shipments of Bread, Cake and Related Products by all plants — those desig- compared with 24% in 1982, 28% in 1977 and 33% in 1972.

While shipments of variety bread continued to gain on white bread, the 31% advance in 1987 from 1982 was smaller than earlier increases of 54% in 1982 from 1977 and 151% in 1977 from 1972. Leading advances in shipments within the variety bread category were hearth value added by manufacture at the expense of Wholesale Bakeries. Grocery Chain Bakeries accounted for 15% of both the industry's value of shipments and value added by manufacture in 1987.

This marked the largest market share for Grocery Chain Bakeries in the history of Census calculations and apparently reflected increased shipments of frozen

Historical statistics for bread, cake industry

Year[1]	Companies[2] (no.)	All establishments[3]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories[4] (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization[5] (percent)	Coverage[6] (percent)
INDUSTRY 2051, BREAD, CAKE, AND RELATED PRODUCTS															
1987 Census	1 947	2 357	1 031	161.6	3 558.0	96.5	166.9	1 714.1	10 532.9	5 670.6	16 202.1	519.3	350.3	97	99
1986 ASM	(NA)	(NA)	(NA)	153.4	3 371.2	91.9	159.9	1 663.3	9 585.8	5 585.9	15 148.2	408.7	325.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	162.1	3 513.4	92.7	156.9	1 624.0	8 910.8	5 576.8	14 398.5	378.0	330.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	162.1	3 398.5	94.8	164.2	1 589.6	8 304.9	5 403.1	13 701.5	406.4	330.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	160.9	3 249.7	93.2	166.1	1 562.2	8 020.1	5 274.5	13 293.4	294.2	318.2	(NA)	(NA)
1982 Census	1 899	2 305	1 074	170.7	3 234.3	99.0	174.5	1 522.9	7 961.1	5 282.7	13 143.3	382.4	305.7	97	98
1981 ASM	(NA)	(NA)	(NA)	176.1	3 087.3	97.5	186.0	1 494.4	7 218.5	5 279.7	12 493.8	287.8	309.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	181.9	2 923.7	101.9	204.5	1 407.9	6 738.5	4 976.1	11 703.1	258.6	288.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	184.4	2 730.2	101.9	203.5	1 316.3	6 224.5	4 515.3	10 737.7	230.4	281.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	179.2	2 572.2	96.0	186.5	1 251.7	5 686.5	4 132.8	9 817.3	324.3	251.7	(NA)	(NA)
1977 Census	2 549	3 082	1 117	178.0	2 395.8	97.4	191.7	1 182.5	5 370.4	3 999.0	9 274.9	290.4	226.1	99	99
1976 ASM	(NA)	(NA)	(NA)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	191.4	1 788.5	109.7	218.4	917.9	3 590.7	3 085.0	6 679.7	143.8	173.4	(NA)	(NA)
1972 Census	2 601	3 323	1 379	193.6	1 662.2	109.6	219.3	876.2	3 516.1	2 615.0	6 132.0	170.6	137.6	99	99

In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1972, see 1972 Census of Manufactures, vol. II, table 1a of the industry chapter.

[1]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[2]Includes establishments with payroll at any time during year.

[3]Beginning with the 1982 Census of Manufactures, all respondents were requested to report their inventories at (the lower of) cost or market prior to adjustment to LIFO cost. This is a change from prior Censuses and annual surveys of manufactures in which respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, inventories and value added by manufacture are not comparable to prior-year data.

[4]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[5]Represents ratio of primary product shipments by establishments classified in industry to total shipments of such products by all establishments, whether classified

Key operating ratios for bread, cake industry

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 2051, BREAD, CAKE, AND RELATED PRODUCTS								
1987 Census	22 004	84	1 [illegible]	10.12	36	67	66 066	34	62.17
1986 ASM	21 876	83	1 [illegible]	10.40	37	69	62 478	35	59.36
1985 ASM	21 [illegible]	81	1 [illegible]	10.16	38	69	54 354	40	53.10
1984 ASM	20 [illegible]	82	1 [illegible]	9.56	38	64	51 233	41	50.56
1983 ASM	20 197	82	1 880	8.34	40	64	49 648	41	48.29
1982 Census	19 042	82	1 891	8.72	40	66	45 [illegible]	41	45.05
1981 ASM	17 891	85	2 031	7.56	42	67	40 991	43	38.46
1980 ASM	16 073	86	2 007	6.86	43	68	36 879	43	32.09
1979 ASM	14 805	85	1 997	6.49	43	67	33 726	44	30.58
1978 ASM	14 359	84	1 974	6.01	42	66	31 733	46	30.01

dough and other products for in-store supermarket bakeries.

Retail Multi-Outlet Bakeries accounted for 1% of value of shipments and less than 1% of value added in 1987, largely unchanged from 1982.

While the 1987 valued added total for Grocery Chain Bakeries of $1,535.3 million remained small in comparison with the $8,921.3 million figure for Wholesale Bakeries, grocery chain baking operations posted an upturn of 142% from 1982.

That was well above the 25% gain for wholesale baking and the 34% increase for the industry overall.

The sharp increase in value added by manufacture for Grocery Chain Bakeries continued to indicate a shift in that segment's product mix to higher value-added products.

Similarly, Grocery Chain Bakeries recorded a 104% increase in value of shipments in 1987, compared with a 16% gain for Wholesale Bakeries and 23% for the industry overall.

Continued wholesale dominance

Although 1987 figures for Grocery Chain Bakeries were impressive, the data for the different sectors of the industry continued to reaffirm the dominance of Wholesale Bakeries. This segment of the Bread, Cake and Related Products Industry in 1987 accounted for 84% of the value of shipments, 89% of total employes and 89% of the total payroll for the industry. Grocery Chain Bakeries, with 15% of value of shipments, accounted for 9% of the employes and 10% of the total payroll. Wholesale Bakeries accounted for 86% of the number of production workers, whereas Grocery Chain Bakeries employed 13% of the industry total.

By way of comparison, Wholesale Bakeries in 1982 accounted for 91% of total employes in S.I.C. 2051, 91% of total payroll and 88% of total production workers. Grocery Chain Bakeries in 1982 accounted for 7% of total employes, 8% of total payroll and 10% of total production workers.

Data on fringe benefits included

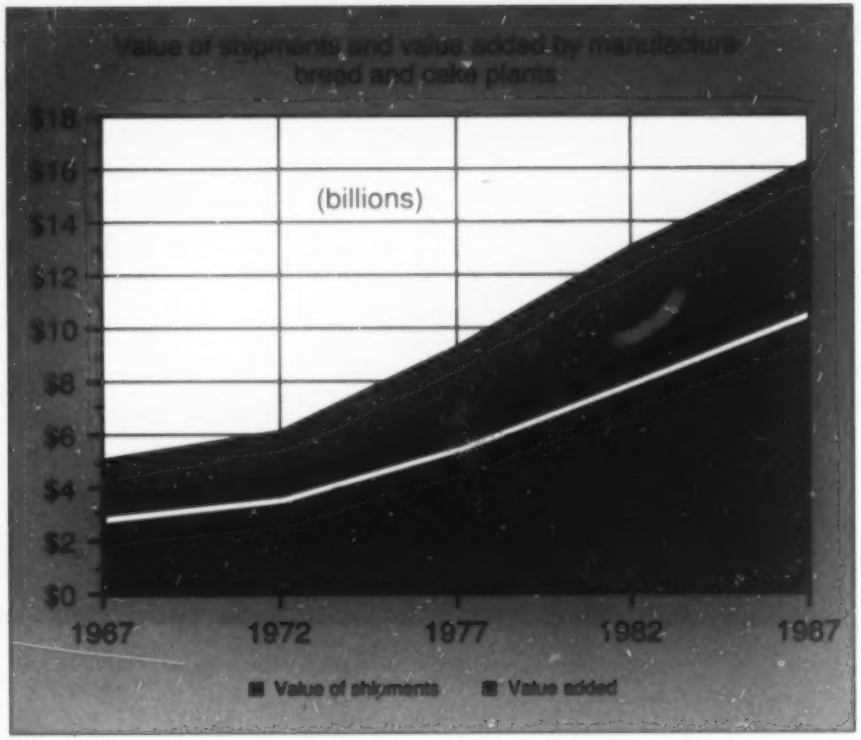
For the first time, the 1987 Census provided data on fringe benefits, including Social Security and other legally required payments, as well as employer payments and other programs. The inclusion of the fringe benefit data in the 1987 Census was regarded by many observers as one of the more timely additions in recent years because of the growing cost of these programs, which include health care.

According to the Census, plants in the Bread, Cake and Related Products Industry in 1987 spent $4,559.4 million in compensation for the 161,600 employes, or approximately $28,214 per employe annually. Of that compensation, annual

classified as primary to the Bread, Cake and Related Products Industry was 24% above 1982, compared with a 23% increase in value of shipments of all products. That was in contrast with 1982, when the value of primary product shipments was 38% above 1977 levels, and the value of all product shipments was up 42%.

Industry shipments, which totaled $16,202.1 million in 1987, compared with $13,143.3 million in 1982, represent the aggregate value of shipments of all establishments classified in the industry. The 1987 aggregate included $13,308.3 million in products classified in the industry (primary); $411.8 million of products classified in other industries (secondary), and $2,482 million in miscellaneous receipts.

Unlike previous years, the 1987 Census did not provide details on value of shipments of products classified as primary to the Bread, Cake and Related



payroll totaled $3,556 million, or 78%; fringe benefits totaled $1,003.4 million, or 22% of the aggregate.

Of the total fringe benefit costs in 1987, Social Security and other legally required payments accounted for $351.3 million, or 35% of the total, while employer payments and other programs were $652.1 million, or 65% of the total.

Value added by manufacture in 1987 represented 65% of the industry's value of shipments, up from 60% in 1982, 58% in 1977, 57% in 1972, 54% in 1967 and 53% in 1963.

Value of 1987 shipments of products Products Industry but shipped by other industries, such as the Cookie and Cracker Industry, S.I.C. 2052. Nor did it identify the secondary products shipped by plants in S.I.C. 2051.

The industry's specialization ratio in 1987 for primary products was 97%, unchanged from 1982 and compared with 99% in 1977. Establishments in the Bread, Cake and Related Products Industry in 1987 accounted for 99% of the shipments of products considered primary to the industry. That coverage ratio was up from 98% in 1982 and 1977 and compared with 99% in 1972 and 1967.

Value of shipments by bread, cake sectors

	1987	(%)	1982	(%)	1977	(%)	1972	(%)	1967	(%)
					(millions of dollars)					
Total	$16,202	(100)	$13,143	(100)	$9,275	(100)	$6,153	(100)	$5,103	(100)
Wholesale	13,681	(84)	11,837	(90)	8,348	(90)	5,321	(86)	4,401	(86)
Grocery chain	2,390	(15)	1,172	(9)	756	(8)	652	(11)	468	(9)
Home service	n.a.		n.a.		n.a.		5	(...)	98	(2)
Retail multi-outlet	132	(1)	134	(1)	171	(2)	176	(3)	135	(3)

Value added by manufacture by bread, cake sectors

	1987	(%)	1982	(%)	1977	(%)	1972	(%)	1967	(%)
					(millions of dollars)					
Total	$10,533	(100)	$7,861	(100)	$5,370	(100)	$3,518	(100)	$2,753	(100)
Wholesale	8,921	(85)	7,150	(91)	4,893	(91)	3,073	(87)	2,390	(87)
Grocery chain	1,535	(15)	634	(8)	371	(7)	337	(10)	229	(8)
Home service	n.a.		n.a.		n.a.		3	(...)	58	(2)
Retail multi-outlet	76	(...)	77	(1)	107	(2)	117	(3)	75	(3)

Plant numbers increase, reversing longtime decline

BAKING CENSUS REPORT

Encouraging signs of increased interest and participation in the Bread, Cake and Related Products Industry was evident in the 1987 Census data. Both the number of companies and the number of plants increased for the first time since the U.S. Department of Commerce adopted its current definition of wholesale baking in 1947.

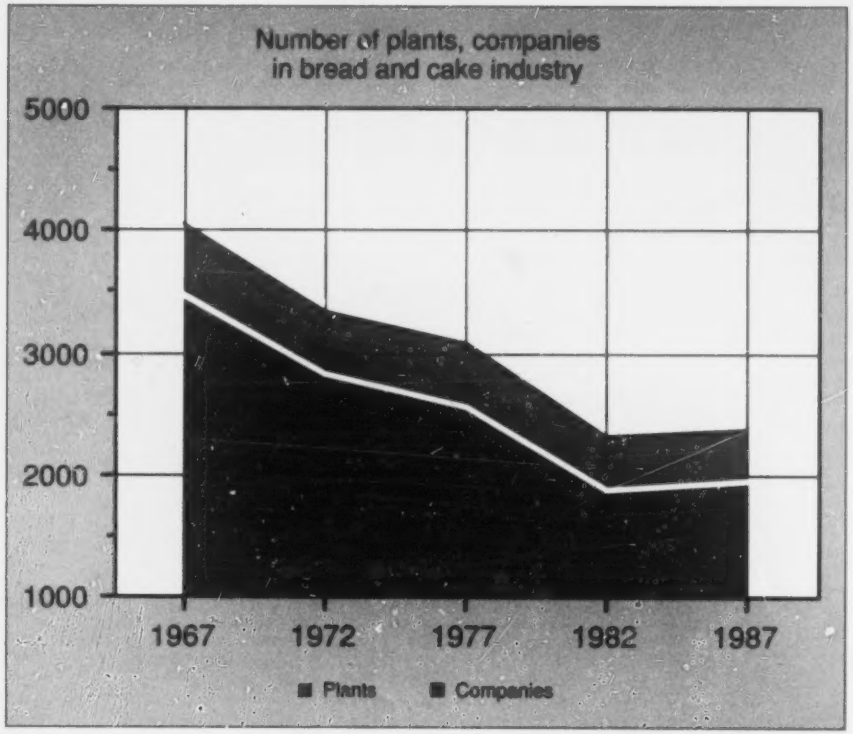
The 4% increase in number of companies in the industry in 1987 from 1982, and the 2% increase in number of plants, halted longstanding downward trends in both measures of baking activity.

While the increase in company numbers was revealed in the preliminary report, the accompanying increase that occurred in plant numbers was not disclosed until the final report included upward revisions in that measure.

Interestingly, the majority of the plant number increase in 1987 from 1982 was in bread and cake baking plants with fewer than 20 employes, apparently reflecting start-up of baking plants specializing in one product or in one-market distribution. That was in contrast with 1982, when a large share of the overall decrease in total plant numbers — down 757 plants between 1977 and 1982 — was concentrated in those smaller plants.

According to the 1987 Census, plants with fewer than 20 employes represented 56% of all plants in the industry while plants with 100 or more employes accounted for 18% of the total. Those percentages compared with 53% and 22%, respectively, in 1982.

For the first time, the 1987 Census expanded its plant size classifications to include a category for plants with 2,500 or more employes. In previous reports, the largest plant size category had been



plants with 1,000 to 2,499 employes.

The share of value of shipments among the four general plant size categories in 1987 was relatively unchanged from 1982.

The 425 plants in the Bread, Cake and Related Products Industry with more than 100 employes — 18% of the industry plants — accounted for 86% of the industry's value of shipments, or $13.9 billion of the $16.2-billion aggregate. That 86% share was unchanged from 1982 and was up from 83% in 1977, 81% in 1972, 79% in 1967 and 74% in 1963.

Value of shipment market shares for plants with fewer than 20 employes, 20 employes accounted for 7% of total industry shipments in 1987, unchanged from 1982 and compared with 9% in 1977, 10% in 1972 and 11% in 1967.

In analyzing industry sectors within S.I.C. 2051, the 361 wholesale plants with 100 or more employes accounted for 85% of the total plants in that size category.

The 1987 Census, unlike earlier Census reports, did not provide value of shipment data on the basis of plant size within the various industry sectors.

The 1987 Census of Manufactures showed one baking plant in the new size category of 2,500 or more employes, the to avoid disclosing information for individual companies.

According to the 1987 Census, there were seven plants in the 1,000 to 2,499 employe size category, up from four in 1982. These seven plants in 1987 had aggregate product shipments valued at $1,378.1 million, or an average of $196.9 million per plant. That $1,378.1-million total for those seven plants was larger than the $378.8-million value of shipments in 1987 by the 1,326 baking plants with fewer than 20 employes. The aggregate also exceeded the total value of shipments of $738 million by the 392 plants with 20 to 49 employes.

According to the Census, there were 1,947 companies in the Bread, Cake and Related Products industry in 1987, up 78, or 4%, from 1,869 companies in 1982 and compared with 2,549 companies in 1977 and 2,801 in 1972. The Census defines a company as "a business organization consisting of one establishment or more under common ownership or control."

The Census counted a total of 2,357 bread and cake plants in 1987, compared with 2,305 in 1982, 3,062 in 1977 and 3,323 in 1972.

Of the bread and cake plants in the 1987 Census of Manufactures, a total of 1,031 were in the 20-or-more-employe category, while 1,326 were in the smaller size grouping. In the 1982 Census, 1,074 plants were counted in the larger category and 1,231 in the small plant grouping. Thus, the 1987 Census showed a decrease of 43 plants, or 4%, in the 20-or-more-employe category, and an increase of 95, or 8%, in the smaller plants.

The increase of 52 plants recorded in 1987 contrasted with a drop of 757 plants in the 1977-82 period, a decline of 261 and cake plants with 100 or more employes, down 15% from 501 in 1982. Plant numbers in all other size categories increased from 1982. Plants with fewer than 20 employes, 20 to 49 employes and 50 to 99 employes increased 8%, 7% and 3%, respectively.

The 1987 Census was the third to measure the number of companies shipping $100,000 or more of principal baked food products. The listing, which includes duplication in numbers because many companies ship in excess of $100,000 of more than one product, showed that 125 companies in 1987 shipped white pan bread in that value category. That was down from 168 in 1982. Decreases also were noted in number of companies shipping wholewheat, cracked wheat and multi-grain bread, and hamburger and wiener rolls with value of more than $100,000.

Increases included the number of com-

Number of companies shipping $100,000 or more of products

	1987	1982
White pan bread	125	168
White hearth bread	149	149
Whole-wheat, cracked	117	130
Rye, pumpernickel	98	110
Other variety bread	78	91
Hamburger, weiner rolls	130	152
Brown and serve rolls	61	60
English muffins	38	41
Hearth rolls	75	77
Other bread-type rolls	158	115
Bread stuffing, croutons	42	43
Yeast-raised donuts	67	94
Other sweet yeast goods	88	121
Snack cakes	47	49
Fruit cakes, holiday-type	29	26
All other soft cakes	96	114
Snack pies	35	41
Other fruit, custard pies	50	58
Pastries	29	36
Cake-type donuts	57	78

to 49 employes and 50 to 99 employes also were relatively unchanged from 1982 levels.

The 1,326 plants with fewer than 20 employes, while representing 56% of plant numbers, accounted for only 2% of the industry value of shipments. That share was unchanged from 1982 and down from 4% in 1977, 1972 and 1967.

Baking plants with 20 to 49 employes — a total of 392 in 1987 — accounted for 5% of the industry's value of shipments, up from 4% in 1982 and 1977 and the same as 1972.

The 214 baking plants with 50 to 99 largest of 10 Census plant size classifications. Data for that single plant with 2,500 or more employes were withheld plants in the 1972-77 period and a 719-plant decrease in the 1967-72 period.

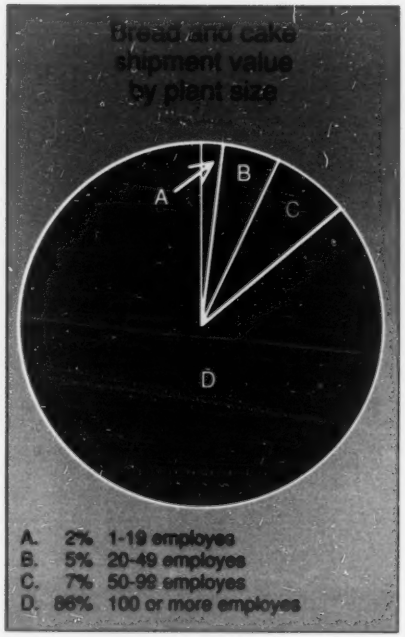
The 1987 Census counted 425 bread panies shipping $100,000 or more of brown and serve rolls and other rolls, including bagels and croissants.

Bread, Cake and Related Products baking plants by employe size

	1987	1982	1977	1972	1967	1963	1958
1-19 employes	1,326	1,231	1,945	1,944	2,434	3,106	3,836
20-99 employes	606	573	561	766	913	1,212	1,441
100 or more	425	501	556	613	695	692	708
Total plants	2,357	2,305	3,062	3,323	4,042	5,010	5,985

Wholesale baking plants by employe size

	1987	1982	1977	1972	1967	1963	1958
1-19 employes	1,319	1,215	1,914	1,900	2,364	2,741	3,443
20-99 employes	547	514	491	641	773	990	1,204
100 or more	361	440	495	536	614	556	552
Total plants	2,227	2,169	2,900	3,077	3,751	4,287	5,199



Share of bread, cake shipments by plant size

	All establishments			Establishments with 1-19 employes			Establishments with 20-99 employes			Establishments with 100 or more employes		
	Number	Shipments value (millions)	% of industry shipments value	Number	Shipments value (millions)	% of industry shipments value	Number	Shipments value (millions)	% of industry shipments value	Number	Shipments value (millions)	% of industry shipments value
1987	2,357	$16,202.1	100%	1,326	$378.7	2%	606	$1,944.5	12%	425	$13,878.9	86%
1982	2,305	13,143.3	100%	1,231	307.7	2%	573	1,535.7	12%	501	11,300.0	86%
1977	3,062	9,274.9	100%	1,945	343.8	4%	561	1,216.7	13%	556	7,714.4	83%
1972	3,323	6,152.6	100%	1,944	235.8	4%	766	980.7	16%	613	4,956.1	81%
1967	4,042	5,102.6	100%	2,434	205.9	4%	913	844.1	17%	695	4,052.6	79%
1963	5,010	4,505.9	100%	3,106	236.6	5%	1,212	925.3	21%	692	3,344.0	74%

White bread increase first in almost 25 years

Several firsts were reflected in production data for the Bread, Cake and Related Products Industry in 1987, including the first increase in white bread shipments in almost 25 years and a record in all bread product shipments.

BAKING CENSUS REPORT

Shipments of white pan bread in 1987 were up 6% from 1982. Since reaching a peak of 9,002.2 million lbs in 1963, shipments of white pan bread had been in a downward trend.

Total bread shipments by all producers in 1987 totaled 11,629.2 million lbs, 6% higher than the previous peak of 11,015.8 million lbs in 1963.

The 1987 Census showed that variety bread shipments by plants in the Bread, Cake and Related Products Industry, up 31% and representing 42% of the total bread shipments, further narrowed the gap between white pan bread, which had a market share of 58%. In 1982, the variety bread and white bread market shares were 37% and 63%, respectively.

While bread continued to be the dominant category in product shipments and value of product shipments, the percentage increase in bread-type roll shipments out-paced this growth with a 26% increase in 1987 from 1982. Bread shipments increased 15% from 1982.

Separate categories in the bread-type roll segment were created for bagels and croissants beginning in 1987. In previous years, those two products were grouped together under "other bread-type rolls."

Shipments in 1987 of sweet goods showed mixed performance. Shipments of yeast-raised donuts, sweet rolls and coffee cakes, and soft cakes were above 1982 levels; shipments of cake-type donuts and pies were lower.

According to the Census, total bread

shipments by all producers in 1987 aggregated 11,629.2 million lbs, up 15% from 10,123.1 million lbs in 1982 and compared with 10,271.7 million lbs in 1977. The 1987 total was up 6% from the peak of 11,015.8 million lbs in 1963.

Shipments of white pan bread in 1987 were up 6% from 1982, marking the first increase in these shipments in almost 25 years. White pan bread shipments in 1987 totaled 6,774.7 million lbs, compared with 6,410.2 million lbs in 1982 and 7,321.6 million lbs in 1977.

While white pan bread continued to be baking's leading product in poundage, percentage increases in shipments of variety bread, including white hearth, whole-wheat, rye and other bread, outpaced the white pan bread performance, thus narrowing the longstanding gap between these two bread categories.

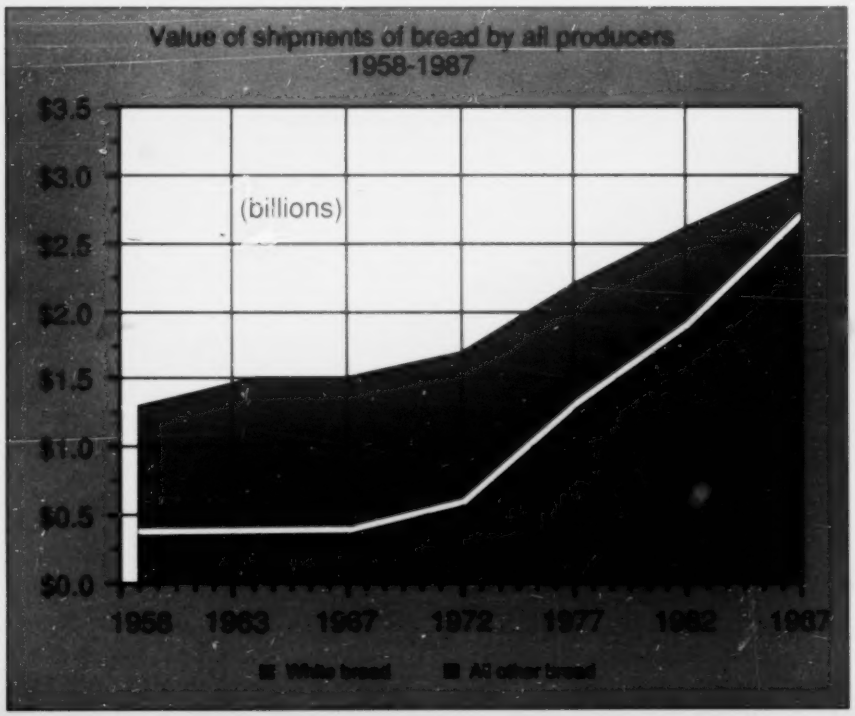
According to the Census, shipments of all variety bread in 1987 totaled 4,854.5 million lbs, up 31% from 1982 shipments of 3,712.9 million lbs and compared with 2,950.1 million lbs in 1977.

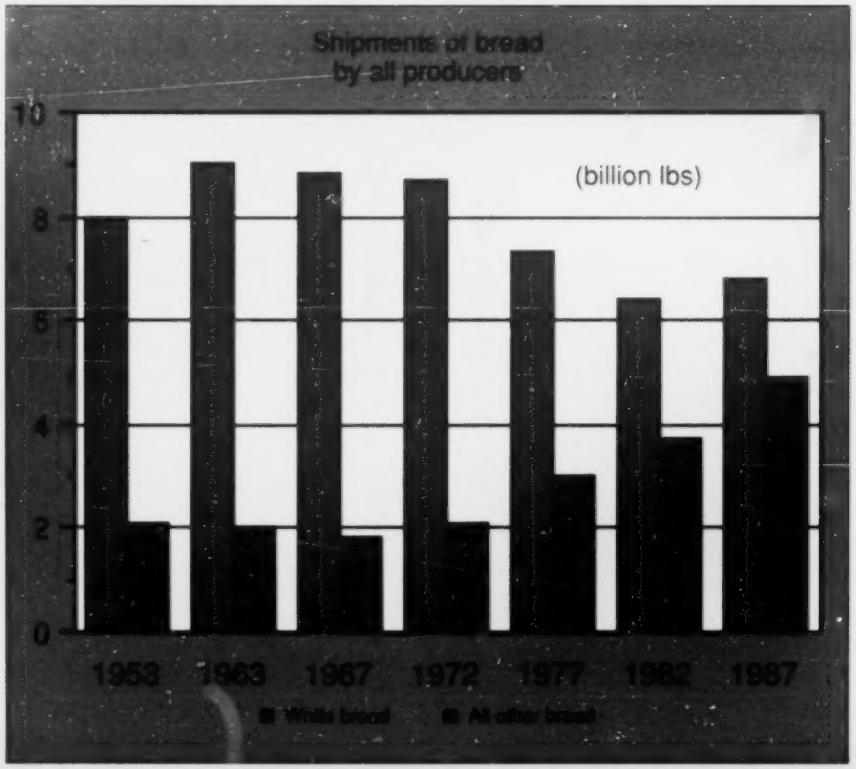
All types of variety bread showed double-digit percentage increases in poundage shipments in 1987. After slowing in 1982, shipments of white hearth bread were up 50% in 1987. Shipments in this category were 1,374 million lbs, up from 918.8 million five years earlier. In 1982, shipments of white hearth bread increased only 4%, or 38.9 million lbs, from 1977 while the 1977 Census showed an increase of 330 million lbs from 1972 and shipments advanced 40.8 million lbs between 1967 and 1972.

Shipments of whole-wheat, cracked

Changes in poundage, value of baking's leading products

Product category	1987 shipments (million lbs)	Change from 1982 (%)	1987 value (million dollars)	Change from 1982 (%)
1. White bread	6,775	+ 6	$3,007	+ 15
2. Hamburger wiener rolls	3,125	+ 15	1,677	+ 27
3. Whole-wheat bread	2,271	+ 16	1,241	+ 29
4. White hearth bread	1,374	+ 50	700	+ 61
5. Snack cakes	1,369	+ 54	1,335	+ 57
6. Other variety bread	732	+ 61	458	+ 80
7. Other sweet yeast goods	602	+ 9	723	+ 24
8. Bagels	522	n.a.	268	n.a.
9. Rye bread	478	+ 25	291	+ 40
10. Other rolls	461	n.a.	299	n.a.
11. Bread stuffing, croutons, crumbs	401	+ 6	214	-10
12. English muffins	417	+ 3	267	+ 3
13. Cake donuts	359	-19	400	-14
14. Brown 'n serve	321	+ 15	218	+ 35
15. Hearth rolls	319	+ 17	168	+ 17
16. Snack pies	314	+ 12	321	+ 28





wheat, multi-grain and other dark wheat bread totaled 2,271 million lbs, up 16% from 1,956.1 million lbs in 1982 and compared with 1,270.2 million lbs in 1977. Shipments of rye bread, including pumpernickel, totaled 477.7 million lbs in 1987, up 25% from 383 million lbs in 1982 and compared with 387.3 million lbs in 1977.

Shipments of "other variety bread," including raisin, potato, salt-rising, salt-free and canned, were 731.8 million lbs in 1987, up 61% from 455 million lbs in 1982. In 1977, shipments of other variety bread were 412.7 million lbs.

The percentage increase in shipments of bread-type rolls in 1987 exceeded the gain in bread shipments.

Shipments of all rolls in 1987 amounted to 5,652.1 million lbs, up 26% from 4,472.7 million lbs in 1982 and compared with 3,879.6 million lbs in 1977. Within the roll category, all product types posted poundage shipment gains in 1987 from 1982 levels.

Percentage increases were led by hearth rolls and hamburger and wiener rolls; the latter continued as the largest product in the bread-type roll category.

Shipments of hearth rolls in 1987 totaled 319.3 million lbs, up 17% from 273.4 million lbs in 1982 and compared with 136.5 million lbs in 1977. Shipments of hamburger and wiener rolls in 1987 were 3,125.1 million lbs, up 15% from 2,718.5 million lbs in 1982 and compared with 2,658 million in 1977.

In other bread-type roll categories, shipments of brown and serve rolls in 1987 were 320.7 million lbs, up 15% from 279 million lbs in 1982 and compared with 263.5 million lbs in 1977. Shipments of English muffins in 1987 totaled 416.8 million lbs, up 3% from

Summary statistics for S.I.C. 2051

Item	Bread, cake, and related products (SIC 2051)			
	Total	Wholesale bakeries (SIC 2051-12)	Grocery store bakeries (SIC 2051-13)	Retail outlet bakeries (SIC 2051-16)
Companies ..... number	1 947	1 887	48	37
All establishments ..... do.	2 357	2 337	69	37
with 1 to 19 employees ..... do.	1 329	1 319	1	9
with 20 to 99 employees ..... do.	606	547	36	69
with 100 employees or more ..... do.	422	391	68	9
Employment and labor costs:				
Employees 1,000	161.8	144.2	14.9	2.5
Compensation, total ..... mil dol.	4 598.4	4 047.5	467.5	44.4
Annual payroll ..... do.	3 598.0	3 174.9	345.6	35.6
Fringe benefits ..... do.	1 003.4	872.6	122.0	8.8
Social Security and other legally required payments ..... do.	351.3	313.1	34.7	3.5
Employer payments and other programs ..... do.	652.1	559.5	87.3	5.3
Production workers:				
Average for year 1,000	86.6	74.0	11.0	1.6
March ..... do.	85.2	72.7	10.9	1.5
May ..... do.	86.2	73.8	10.9	1.5
August ..... do.	87.0	74.6	10.9	1.6
November ..... do.	87.9	74.4	11.1	1.6
Hours ..... millions	169.9	144.4	21.5	3.0
January to March ..... do.	41.3	35.2	5.4	.7
April to June ..... do.	42.3	36.1	5.4	.8
July to September ..... do.	42.9	36.6	5.6	.8
October to December ..... do.	42.4	36.4	5.5	.7
Wages ..... mil dol.	1 714.1	1 488.6	205.5	21.0
Value added by manufacture ..... do.	10 092.9	8 661.5	1 336.9	78.9
Cost of materials ..... do.	5 670.8	4 791.2	854.8	85.0
Materials, parts, containers, etc., consumed ..... do.	3 792.5	3 206.0	526.6	39.6
Resales ..... do.	1 610.6	1 316.8	278.8	14.9
Fuels ..... do.	194.9	167.6	15.9	1.3
Purchased electricity ..... do.	161.4	110.8	10.1	2.2
Contract work ..... do.	21.9	17.9	3.5	.2
Quantity of electric energy used for heat and power:				
Purchased ..... mil kwh	2 954.7	1 878.9	967.3	48.6
Generated here and sold ..... do.	8.2	8.2	-	-
Total value of shipments ..... mil dol.	16 888.1	13 988.6	2 359.5	132.1
Primary products ..... do.	16 338.3	13 924.9	2 274.5	98.9
Secondary products ..... do.	411.8	291.1	66.8	19.5
Miscellaneous receipts, total ..... do.	2 402.6	2 072.6	618.4	22.9
Value of resales ..... do.	2 388.1	2 057.8	476.8	20.1
Contract receipts ..... do.	5	3	1	.1
Other miscellaneous receipts ..... do.	119.8	113.8	1.6	(D)
Primary product specialization ratio ..... percent	97	(NA)	(NA)	(NA)
Coverage ratio ..... do.	89	(NA)	(NA)	(NA)

404 million lbs in 1982 and compared with 334.8 million lbs in 1977.

The 1987 Census report is the first to provide separate data for bagels and croissants.

Shipments of bagels in 1987 totaled 522.1 million lbs and shipments of croissants were 86.1 million lbs. Shipments of other bread-type rolls in 1987 aggregated 461.2 million lbs.

Shipments of bread stuffing, croutons and bread crumbs in 1987 were 400.8 million lbs, up 6% from 376.6 million lbs in 1982 and compared with 229.5 million lbs in 1977.

Shipments of total sweet goods — sweet yeast goods, cakes, pies and donuts — were 3,302.7 million lbs, up 18% from 2,809.2 million lbs in 1982 and compared with 2,606.6 million in 1977.

Shipments of soft cakes and sweet yeast goods, including yeast-raised donuts, sweet rolls and coffee cakes, were above 1982 levels, while shipments of cake-type donuts and pies were below levels of five years earlier.

Shipments of sweet yeast goods, including yeast-raised donuts and other types of sweet yeast goods such as sweet rolls and coffee cakes, totaled 879.9 million lbs in 1987, up 27% from 695.2 million lbs in 1982. The increase in shipments reversed a downward trend extending back to 1972.

The Census also showed an increase in shipments of yeast-raised donuts, at 277.5 million lbs, almost double shipments of 140.3 million lbs in 1982 and compared with shipments of 222.5 million lbs in 1977. Shipments in 1987 of all other types of sweet yeast goods, including sweet rolls and coffee cakes, were 602.4 million lbs, up 9% from 554.9 million lbs in 1982 and compared with 596 million in 1977.

The Census placed shipments of cake-type donuts at 359.3 million lbs, down 19% from 444.3 million lbs in 1982 and compared with 354.1 million lbs in 1977.

According to the Census, shipments of soft cakes, except frozen, were 1,657 million lbs, up 38% from 1,203.3 million in 1982.

Within the soft cake category, shipments of snack cakes totaled 1,368.8 million lbs, up 54% from 891.2 million lbs in 1982 and compared with 804.1 million lbs in 1977. Much of the increase in 1987 was attributed to the growing popularity of muffins.

Shipments of fruit cakes, holiday type, in 1987 aggregated 38.1 million lbs, up 130% from 16.6 million lbs in 1982 and compared with 24.7 million lbs in 1977.

Shipments of all other soft cakes, including pound, layer, sheet and cheesecake, in 1987 aggregated 250.1 million lbs, down 15% from 295.5 million lbs in 1982.

Shipments of all fresh pies, fruit and custard, in 1987 totaled 406.5 million lbs, down 13% from 466.4 million lbs in 1982.

The final Census report decreased shipments of pies in 1987 by 20.7 million lbs from the preliminary report's total of 427.2 million lbs, primarily due to a downward revision in preliminary data for shipments of snack pies.

According to the final Census report, shipments of snack pies totaled 314.2 million lbs, up 12% from 279.8 million lbs in 1982 and compared with 286.9 million lbs in 1977. Shipments for 1987 were decreased from the preliminary report's figure of 334.9 million lbs.

Shipments of all other pies in 1987 totaled 92.3 million lbs, down 51% from 186.6 million lbs in 1982 and compared with 182.1 million lbs in 1977.

Bread, cake and roll shipments in pounds, dollar value

[Includes quantity and value of products of this industry produced by: (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included.

1987 product code	Product	1987			1982		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2051– —	BREAD, CAKE, AND RELATED PRODUCTS						
	Total	(NA)	(D)	13 [illegible]	(NA)	(D)	11 [illegible]
20511 —	Bread: white, wheat, and rye (including frozen)	(NA)	(D)	6 [illegible]	(NA)	(D)	4 [illegible]
20511 11	White pan bread, mil lb baked wt	139	[illegible]	[illegible]	169	[illegible]	[illegible]
	Variety breads:						
20511 12	White specialty, including French, Italian, etc., mil lb baked wt	140	[illegible]	[illegible]	140	[illegible]	[illegible]
20511 13	Whole wheat, cracked wheat, multigrain, and other dark varieties, mil lb baked wt	[illegible]	[illegible]	[illegible]	150	[illegible]	[illegible]

20611 17	Rye, including pumpernickel	do...	39	477.7	501.2	110	**550.0	550.5
20611 39	Other variety breads (raisin, potato, salt-rising, salt-free, canned, etc.)	do...	78	791.0	467.7	91	**436.0	554.1
20611 00	Bread, white, wheat, and rye, n.s.k.		(NA)	(D)	98.0	(NA)	(D)	221.9
20612 —	Rolls, bread-type, including brown and serve; bread stuffing and bread crumbs		(NA)	(D)	3 211.9	(NA)	(D)	2 437.7
	Rolls, bread-type (including frozen):							
20612 21	Hamburger and wiener rolls	mil lb baked wt...	130	*3 126.1	1 677.2	152	*2 718.5	1 226.4
20612 25	Brown and serve rolls	do...	61	220.7	218.3	60	*279.0	181.6
20612 36	English muffins	do...	93	416.8	286.9	41	*404.0	256.1
20612 37	Hearth rolls	do...	76	**319.2	168.0	77	**273.4	143.8
20612 38	Bagels, all types	do...	89	822.1	288.4			
20612 40	Croissants	do...	32	86.1	74.4	115	**421.2	293.9
20612 42	Other bread-type rolls (kaiser, except hearth-type, clubhouse, etc.), excluding bagels	do...	97	481.2	288.7			
20612 46	Bread stuffing, croutons, and bread crumbs (plain and seasoned)	do...	42	*469.8	213.6	43	*378.6	237.5
20612 00	Rolls, bread-type, n.s.k.		(NA)	(D)	28.4	(NA)	(D)	77.4
20613 —	Sweet yeast goods, except frozen		(NA)	(D)	984.7	(NA)	(D)	786.7
20613 13	Yeast-raised doughnuts	mil lb baked wt...	67	*277.5	288.7	84	*160.2	168.4
20613 99	All other types of sweet yeast goods, including sweet rolls and coffeecakes	do...	99	662.4	732.7	121	*554.9	580.8
20613 00	Sweet yeast goods, n.s.k.		(NA)	(D)	13.3	(NA)	(D)	17.5
20614 —	Soft cakes, except frozen		(NA)	(D)	1 770.3	(NA)	(D)	1 231.2
20614 13	Snack cakes	mil lb baked wt...	47	1 388.6	1 394.9	49	681.2	682.4
20614 15	Fruit cakes, holiday type	do...	29	38.1	67.9	26	18.6	37.1
20614 19	All other soft cakes (except frozen), including pound, layer, sheet, cheese, etc.	do...	98	**280.1	357.8	114	**295.5	322.8
20614 00	Soft cakes, except frozen, n.s.k.		(NA)	(D)	8.8	(NA)	(D)	19.0
20615 —	Pies (fruit and custard), except frozen		(NA)	(D)	486.7	(NA)	(D)	394.5
20615 13	Snack pies	mil lb baked wt...	36	314.2	320.7	41	279.8	349.7
20615 19	All other	do...	80	98.3	114.2	58	106.8	144.2
20615 00	Pies (fruit and custard), except frozen, n.s.k.		(NA)	(D)	.8	(NA)	(D)	.8
20616 —	Pastries (excluding toaster pastries, pies, and yeast type):							
20616 00	Pastries (except frozen): all types of baking powder leavened only, including cream puffs, eclairs, French pastry, puff pastry, etc.		28	(D)	20.4	26	(D)	28.2
20617 —	Doughnuts (cake type):							
20617 09	Doughnuts, cake type (except frozen) (baking powder leavened)	mil lb baked wt...	57	389.5	399.7	79	444.8	466.9
20618 —	Bread, cake, and related products, n.s.k.		(NA)	(D)	965.8	(NA)	(D)	1 001.8
20618 09	Bread, cake, and related products, n.s.k., typically for establishments with 20 employees or more (see note)		(NA)	(D)	844.4	(NA)	(D)	799.0
20618 02	Bread, cake, and related products, n.s.k., typically for establishments with less than 20 employees (see note)		(NA)	(D)	880.8	(NA)	(D)	875.8

Note: In 1997 Census of Manufactures, data for establishments of small single unit companies with up to 20 employees were estimated from administrative-record data rather than data actively collected from respondents. Employment counts used for administrative records for each industry and statewide figures are included in code ending with "00". In both 1997 and 1992 Censuses of Manufactures, products and completely finished or standard items were coded to appropriate product class (7-digit) followed by "50" or to appropriate product group code (five-digit) followed by "999".

Data marked (NA) not available. (D) Withheld to avoid disclosure of data for individual companies.

Data marked with * are estimates based on carcass and retail weight and are based on quantity-value relationships of reported data. The SIC4/SIC5 symbols are used when coverage of each product class published in this section equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated; # 30 percent or more is estimated. Source: U.S. Census Bureau, 1997 Economic Census, Manufacturing, Subject Series, Product Lines.

Capital spending up 36% to $519 million

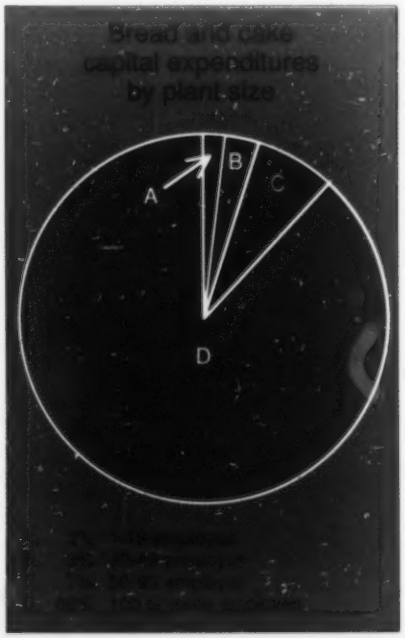
Expenditures on new plant and equipment by the 2,357 establishments classified in the Bread, Cake and Related Products Industry in 1987 totaled $519.3 million, up 36% from $382.4 million in 1982.

BAKING CENSUS REPORT

The overall increase of 36% in capital expenditures from 1982 was the same as the increase in capital expenditures in 1982 from 1977. (Dollar figures are at prices current at the year specified and are not adjusted for inflation.)

The 1987 capital spending of $519.3 million for new plant and equipment compared with the $280.4-million aggregate for new plant and equipment of $519.3 million and Annual Survey of Manufactures estimates for capital spending in the Bread, Cake and Related Products Industry provides an aggregate of $1,998.6 million in the five-year period ended in 1987. A comparable aggregate for the five-year period ended in 1982 was $1,553.5 million.

According to the Annual Survey of Manufactures, new capital expenditures by the Bread, Cake and Related Products Industry totaled $284.2 million in 1983, $408.4 million in 1984, $378 million in 1985 and $408.7 million in 1986.



Bread and cake capital expenditures, 1987 and 1982

	1987	1982 (millions of dollars)	% change
New plant, equipment	$519.3	$382.4	+36
New machinery, equipment	428.5	290.4	+48
Automobiles, trucks	91.3	n.a.	n.a.
Computers, data processing	11.8	n.a.	n.a.
All other	325.4	n.a.	n.a.
Buildings, structures	90.8	92.1	-1
Used plant, equipment	33.8	38.4	-12
Total spending	$553.1	$420.8	+31

N.A. - not available

New equipment spending up

The 1987 Census aggregate of $519.3 million included $428.5 million for new machinery and equipment and $90.8 million for buildings and other structures, compared with $290.4 million and $92.1 million, respectively, in 1982. Thus, companies in S.I.C. 2051 in 1987 spent 48% more than in 1982 on new machinery and equipment, and 1% less on buildings and other structures.

The new machinery and equipment total for 1987, according to the Census report, included $91.3 million for automobiles, trucks and other transportation equipment, $11.8 million for computers and data processing equipment and $325.4 million for all other machinery and equipment.

Companies in the Bread, Cake and Related Products industry also spent $33.8 million on used equipment in 1987, down from $38.4 million in 1982.

Larger-plant spending share up

Concentration of capital expenditures among the largest-sized plants in the Bread, Cake and Related Products Industry continued to increase in the 1987 Census.

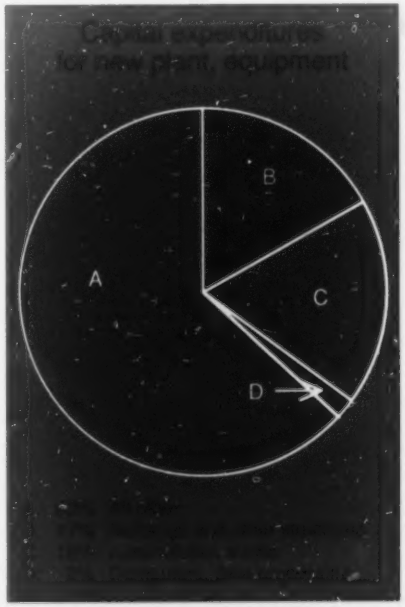
The 425 plants in the Bread, Cake and Related Products Industry with more than 100 employes accounted for new capital expenditures in 1987 of $457.5 million, or 88% of the industry's total. In the 1982 Census, the 501 plants in this size category accounted for outlays of $329.2 million, or 86% of the industry total. In the 1977 Census, the 556 plants in this size category accounted for capital expenditures of $211.3 million, or 75% of the industry's new expenditures.

The share of new capital expenditures by plants in the three other principal size categories declined or were unchanged. Plants with 50 to 99 employes accounted for 7% of total industry expenditures, down from 8% in 1982 and 13% in 1977. Plants with 20 to 49 employes accounted for 2% of new capital expenditures, unchanged from 1982 and down from 6% in 1977.

In detailing capital expenditures by plants according to their degree of specialization in products primary to the industry, the 1987 Census showed that

Capital expenditures for baking plants by primary product

Primary product	Number of plants	Capital expenditures	Per cent of total
Bread	430	$300.6	57.9%
Rolls	164	60.3	11.6%
Sweet goods	76	30.5	5.9%
Soft cakes	65	101.6	19.6%
Pies	31	4.0	0.8%
Pastries	8	0.5	0.1%
Cake donuts	5	0.7	0.1%

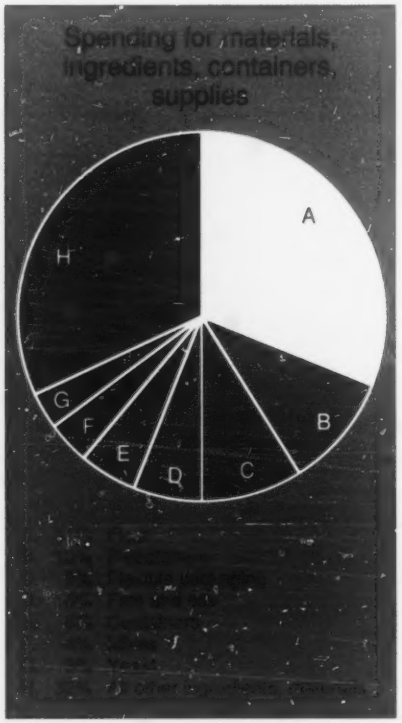


gregate in 1977, $170.6 million in 1972, $127.9 million in 1967, $95.3 million in 1963 and $104.1 million in 1958.

Combining the 1987 capital expenditures for mobiles and trucks, $11.8 million for computers and data processing and $325.4 million for all other. The 1987 Census was the first to provide this 1977. Plants with 20 to 49 employes accounted for 3% of new capital spending in 1987, down from 4% in 1982 and 6% in 1977. Plants with fewer than 20 the 430 plants with bread as a primary product accounted for capital outlays of $300 million, or 58% of the industry total.

Flour usage climbs to apparent record

Use of flour in the Bread, Cake and Related Products Industry in 1987 apparently reached a new peak. While that assessment at first glance would appear to coincide with the record poundage shipments by bread and cake plants in 1987, questions have surfaced because of a rather wide variation in the percentage increases in flour use and production from 1982.



According to the 1987 Census, plants in S.I.C. 2051 in 1987 used 141,508,000 cwts of flour, up 41% from 100,062,000 cwts in 1982. That percentage increase is considerably larger than the 18% increase in total 1987 poundage shipments of bread, bread-type rolls, cakes and sweet goods over 1982 levels.

Similar questions were raised on flour usage numbers in the 1982 Census, which showed that wheat flour usage was down 4% from 1977 levels but poundage shipments increased 3%.

A principal explanation for that 1982 variation was changing product mix — particularly the increased production of variety bread using more non-flour ingredients and/or higher water levels in formulas than in white bread. That theory obviously does not explain the variation in flour usage and production percentages in 1987, which was opposite, as well as considerably broader than, that noted in the 1982 Census.

If the 1987 flour usage total is accurate, it would be 35% larger than the previous record of 104,711,000 cwts in 1977.

Interestingly, the 1987 flour usage total in the final Census report was increased 32% from the 106,862,600 cwts shown in the preliminary report. Most of that 34,645,400-cwt revision was in white bread-type flour. The revisions, according to a Census Bureau official, reflected corrections as well as receipt of late data not compiled in the preliminary report. Even at the 106,862,600-cwt level indicated in the preliminary report, flour usage in 1987 exceeded the previous record in 1977.

Usage of major ingredients by bread and cake industry

	Wheat flour	Prepared mixes	Shortening	Sweeteners
		--(million lbs)--		
1987	14,150.8	516.6	837.7	1,969.7
1982	10,006.2	393.4	550.4	1,856.0
1977	10,471.1	430.1	590.7	1,679.9
1972	10,086.2	519.2	482.3	1,505.8
1967	10,213.0	642.6	397.4	1,386.1

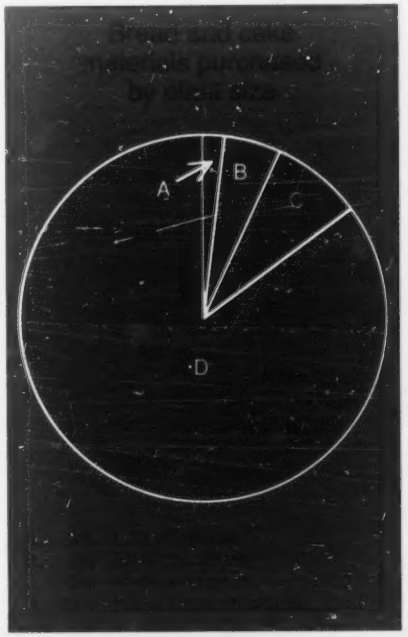
The 1987 flour total included 117,861,000 cwts of white bread-type flour, up 36% from 86,927,000 cwts in 1982. Plants in S.I.C. 2051 in 1987 used 5,016,000 cwts of cake-type flour, up 44% from 3,485,000 cwts in 1982. Usage of cookie and cracker-type flour in 1987 was 2,804,000 cwts, up a startling 460% from 501,000 cwts in 1982, the first year in which the category was broken out separately.

Usage of "other wheat flour, including whole-wheat, cracked wheat and clear flour but excluding prepared mixes," aggregated 13,545,000 cwts in 1987, up 68% from 8,044,000 cwts in 1982. The 1987 total for this category was increased 35% from the 10,021,000 cwts in the preliminary report.

Usage of wheat gluten in 1987 totaled 2,282,000 cwts, up 107% from 1,105,000 cwts in 1982, when it too was a new category.

Increase of 31% in mix usage

Use of prepared mixes by bread and



cake plants in 1987 totaled 5,166,000 cwts, up 31% from 3,934,000 cwts in 1982 and compared with 4,301,000 cwts in 1977. Mix usage in 1972 and 1967 totaled 5,192,000 cwts and 6,426,000 cwts, respectively.

Mix usage in 1987 included 1,963,000 cwts of cake and yeast-type donut mixes, down 18% from 2,401,000 cwts in 1982, and 1,168,000 cwts of bread-type mixes, including franchise mixes, up 84% from 635,000 cwts in 1982.

The Census showed that usage of cake-type mixes in 1987 totaled 497,000 cwts, up 352% from 110,000 cwts in 1982, when the category was listed for the first time. Use of "other prepared mixes, including sweet goods," totaled 1,538,000 cwts in 1987, up 95% from 788,000 cwts in 1982.

In contrast with the increase in the flour usage numbers from the preliminary report, the flour mix aggregate in the final report was 1,523,000 cwts smaller than shown in the preliminary data.

Total cost of $3.8 billion

According to the Census, the Bread, Cake and Related Products Industry in 1987 used ingredients, materials, containers and other supplies with a delivered cost of $3,782.2 million, up 1% from $3,729.8 million in 1982. The slight increase in value of ingredient and material usage noted in the 1987 Census contrasted with an advance of 32% in 1982.

Wheat flour, sweeteners and packaging materials continued to account for the top three ingredient and material costs for bread and cake plants, according to the 1987 Census. Wheat flour accounted for 31% of the total costs, while sweeteners used by the industry in 1987 accounted for 10% for the total. Flexible packaging materials and paperboard containers, boxes and corrugated paperboard accounted for 14%.

Averages $7.09 per cwt

Total cost of flour used in the Bread, Cake and Related Products Industry in 1987 was $1,168.4 million, down 1% from $1,177.4 million in 1982 and compared with $822.9 million in 1977. On a per cwt basis, the delivered flour costs were $7.09 in 1987, $11.31 in 1982 and $7.55 in 1977. The 31% share of total ingredient and material costs represented by flour in 1987 compared with 32% in 1982 and 29% in 1977.

Ranking second to flour as baking's largest purchasing cost in 1987 was the sweetener category. Total cost of sweeteners in 1987 was $368.6 million, or 10% of the total cost of all ingredients and materials. That compared with $331.6 million, or 9% of the aggregate, in 1982.

Use of sweeteners by the Bread, Cake and Related Products Industry continued to increase, according to the Census. It showed usage in 1987 of 2,185.2 million lbs, up 18% from 1,856 million lbs in 1982 and compared with 1,679.9 million lbs in 1977.

The 1987 sweetener total included 453.3 million tonnes, or 906.6 million lbs, of cane and beet sugar, up 15% from 395.8 million tonnes, or 791.6 million lbs, in 1982.

The switch by many bakers from cane and beet sugar to corn-based sweeteners continued to be reflected in the 1987 Census report. Use of corn syrup, high fructose corn syrup and other natural sweeteners in 1987 totaled 1,264.2 million lbs.

For the first time, the 1987 Census report separated "other natural sweeteners, including dextrose, honey, molasses and blends of corn sweeteners," from artificial sweeteners.

In 1987, usage of other natural sweeteners totaled 201.1 million lbs, while artificial sweetener usage was placed at 14.4 million lbs. The 1982 total for the two categories combined was 132.4 million lbs.

Total cost of flexible packaging materials and paperboard containers, boxes and corrugated paperboard in 1987 aggregated $546.7 million, or 14% of the total cost of all ingredients and materials. This same category in 1982 represented a cost of $478 million, or 13% of the aggregate.

Plants in S.I.C. 2051 in 1977 used 406.5 million lbs of 100% vegetable shortening, 175.8 million lbs of animal shortening and blends of animal and vegetable shortening, and 255.4 million lbs of lard.

While the final Census report omitted a separate usage figure for 100% vegetable shortening in 1982, that was apparently an oversight, as the final report in that Census year placed usage at 106.1 million lbs, or a little more than one-fourth of the 1987 total.

The 1982 final Census report placed usage of animal shortening and blends at 367.2 million lbs and of lard at 77.1 million lbs.

Bread and cake plants in 1987 also used 152.7 million lbs of other fats and oils (cooking oils, butter, margarine and puff paste), little changed from 155.6 million lbs in 1982.

Mixes represent 4% of total cost

Prepared flour mixes, with a total cost of $144.9 million, represented 4% of the total costs, compared with $122.9 million, or 3%, in 1982. In 1977, the Bread, Cake and Related Products Industry spent $101.5 million on mixes, which represented 4% of the total ingredient and material costs.

In the milk and milk replacers category, the industry in 1987 used 158.2 million lbs. Data in 1982 were withheld because estimates did not meet publication standards on the basis of either the response rate or a consistency review.

Usage of yeast by bread and cake plants in 1987 aggregated 329 million lbs. The 1987 total, which included 220.2 million lbs of compressed yeast and 108.8 million lbs of active dry yeast, was not strictly comparable to 1982, when data on active dry yeast were withheld because estimates did not meet publication standards.

The $3,782.2-million cost for materials, ingredients, containers and supplies used by the Bread, Cake and Related Products Industry in 1987 represented 67% of the total cost of materials and services used by bread and cake plants, which was $5,670.6 million. The latter total included, in addition to materials and ingredients, the cost of resales, fuel and electricity, and contract work.

Cost of materials and ingredients used as a percentage of the industry's total value of shipments declined in 1987.

Materials, ingredients consumed as per cent of value of shipments

	Materials consumed (millions)	Per cent of industry shipments
1987	$3,782.2	23%
1982	3,729.8	28%
1977	2,829.1	31%
1972	1,957.8	32%
1967	1,856.3	37%
1963	1,673.0	37%
1958	1,635.6	40%
1954	1,456.9	44%

Soft cakes, cake donuts buck frozen decline

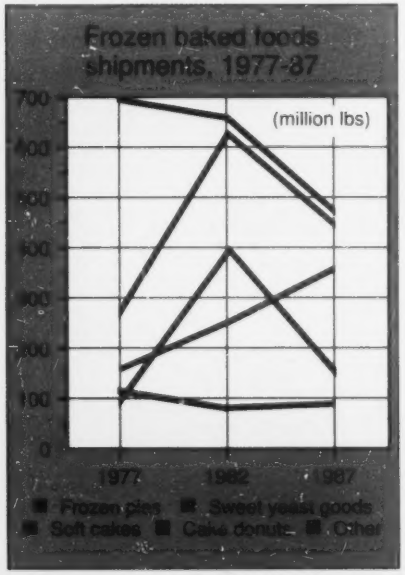
BAKING CENSUS REPORT

In its first separate report on Frozen Bakery Products, S.I.C. 2053, the Census of Manufactures for 1987 showed shipments of three of five principal frozen baked foods categories were down from 1982 levels. The exceptions were in frozen soft cakes and frozen cake donuts.

Newly established S.I.C. 2053 includes plants engaged in freezing and packing baked foods, including pies, sweet yeast goods, soft cakes and donuts.

In previous Census years, these products and establishments were classified as part of S.I.C. 2038, Frozen Specialties Industry.

Frozen bread and bread-type rolls data continue to be included in the Census of Manufactures report for S.I.C. 2051, the Bread, Cake and Related Products Industry.



The Census in its final report counted 103 companies and 114 plants in the Frozen Bakery Products Industry. Both counts were revised from the preliminary Census report, which showed only 57 companies and 111 plants.

Of the 114 plants in Frozen Bakery Products, 66, or 58%, had more than 20 employes. The industry total included 48 plants with fewer than 20 employes, 39 plants with 20 to 99 employes, and 27 plants with more than 100 employes.

Total value of shipments by plants in S.I.C. 2053 in 1987 aggregated $1,165.4 million.

The total included $1,071.2 million in products considered primary to the Frozen Bakery Products Industry, $84.9 million in secondary products, and $9.3 million in miscellaneous receipts. Thus, the specialization ratio — the ratio of primary products to the total of both secondary and primary products — of the Frozen Bakery Products Industry was 93%.

Account for 78% of shipments

Plants in S.I.C. 2053 accounted for 78% of product shipments considered primary to the industry. Total value of these shipments by all producers in 1987 was $1,372.7 million, up 6% from $1,292.5 million in 1982. That small increase reflected a decrease in poundage shipments.

According to the Census report, shipments of all frozen baked foods, except bread and bread-type rolls, by all producers aggregated 1,508.3 million lbs in 1987, down 25% from 1,999.4 million lbs in 1982.

Frozen pies (fruit, custard and cream type) continued as the leading frozen baked foods product in poundage and value in 1987, despite reductions from 1982.

Shipments of frozen pies totaled 478.9 million lbs in 1987, down 27% from 658.5 million lbs in 1982. Value of these shipments in 1987 was $449.4 million, up 15% from $391.2 million in 1982.

In marked contrast to the reduced shipments of frozen pies, shipments of frozen soft cakes (including pound, layer, sheet, fruit and cheese cake) in 1987 were up 42% from 1982.

Frozen soft cake shipments totaled 356.2 million lbs, according to the 1987 Census report, compared with the aggregated of 250.1 million lbs in 1982. Value of soft cake shipments in 1987 was $392 million, up 34% from $293 million in 1982.

The Census also showed an increase in 1987 shipments of frozen cake-type donuts. These shipments aggregated 83.9 million lbs, up 7% from 78.4 million in 1982. Value of frozen cake-type donut shipments in 1987 was $58.5 million, up 20% from $48.7 million in 1982.

Shipments of frozen sweet yeast goods (including yeast-raised donuts, sweet rolls and coffee cake) in 1987 totaled 152.6 million lbs, down 61% from 391.1 million in 1982. Value of these shipments in 1987 was placed at $157.6 million, down 25% from $209.2 million five years earlier.

In other frozen bakery products (including cookies and pastries), shipments in 1987 totaled 436.7 million lbs, down 30% from 621.3 million in 1982. Value of these shipments was $288 million in 1987 and $338.6 million in 1982.

Twenty-seven plants as leaders

The 27 plants with more than 100 employes in the Frozen Bakery Products Industry in 1987, while representing 24% of the total plant numbers, accounted for value of shipments of $958.1 million, or 82% of the industry total. These same 27 plants accounted for $495.1 million in value added by manufacture, or 83% of the industry total, which was $600 million.

The 103 companies in S.I.C. 2053 employed a total of 9,900 persons in 1987 with a total payroll of $195 million. That included 7,500 workers in production with total wages of $132.2 million.

Plants in S.I.C. 2053 in 1987 used materials, ingredients, containers and supplies with a delivered cost of $532.6 million.

The aggregate included 2,815,900 cwts of wheat flour with a delivered cost of $28.5 million and 108.6 million lbs of fats and oils with a delivered cost of $36.6 million.

Materials, ingredients consumed by Frozen Bakery Products Industry

	Quantity (million lbs)	Delivered cost (millions)
Natural cheese	...	$14.8
Frozen fruits	90.2	35.9
Cane, beet sugar	114.0	28.5
Fats and oils	108.6	36.6
Wheat flour	281.6	28.5
Flexible packaging	...	14.2
Containers, boxes	...	64.3
Aluminum packaging	...	23.1
Other	...	286.7